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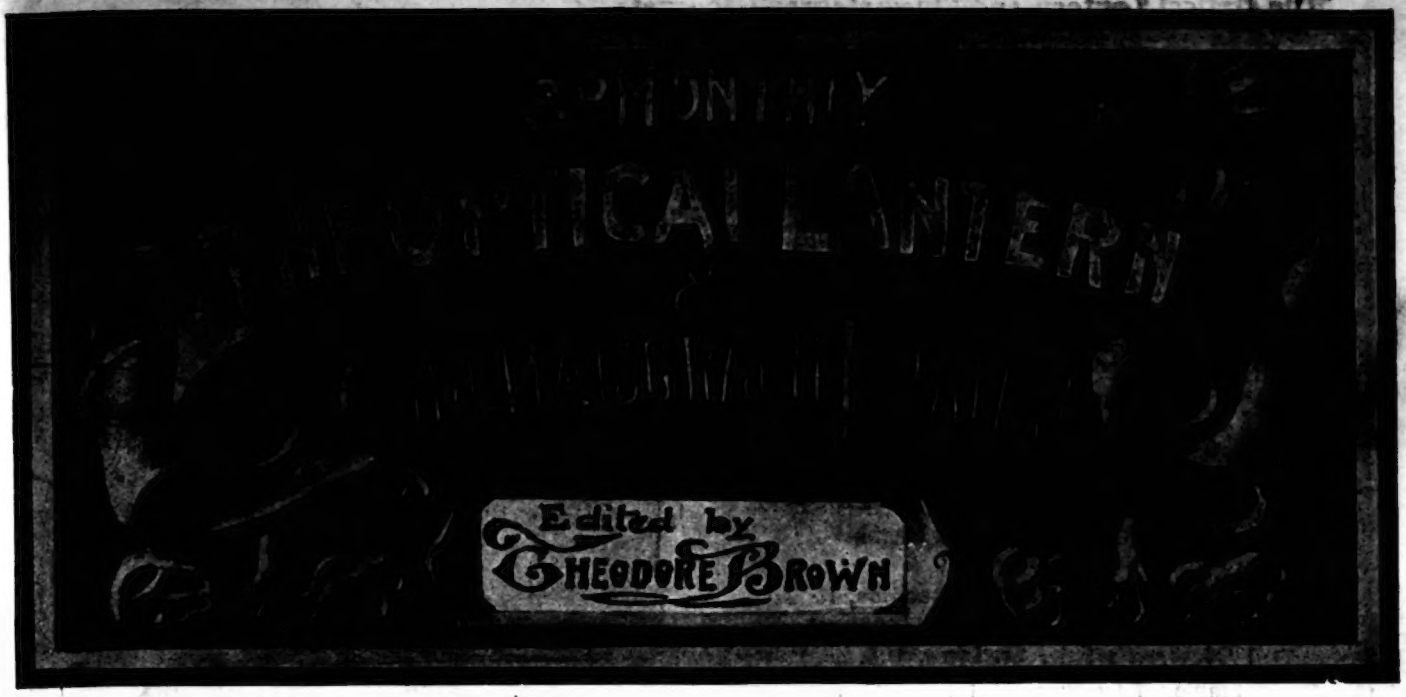

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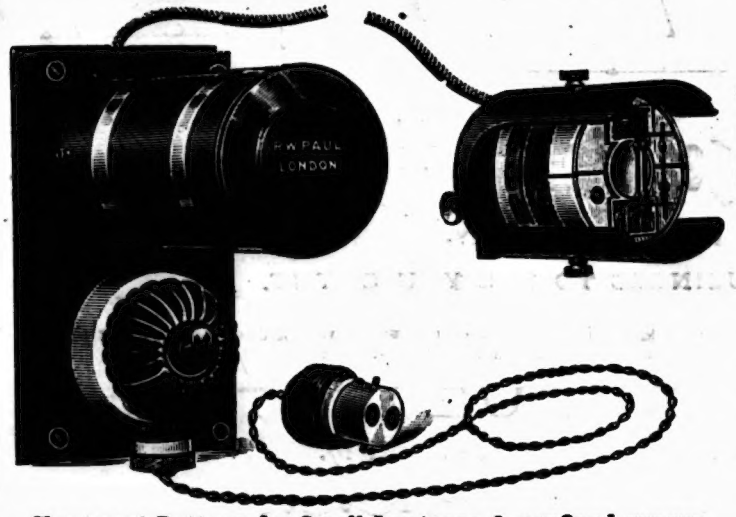
No. 6.—Vol. 1. APRIL, 1905. 3d. Monthly. By Post, 4d.



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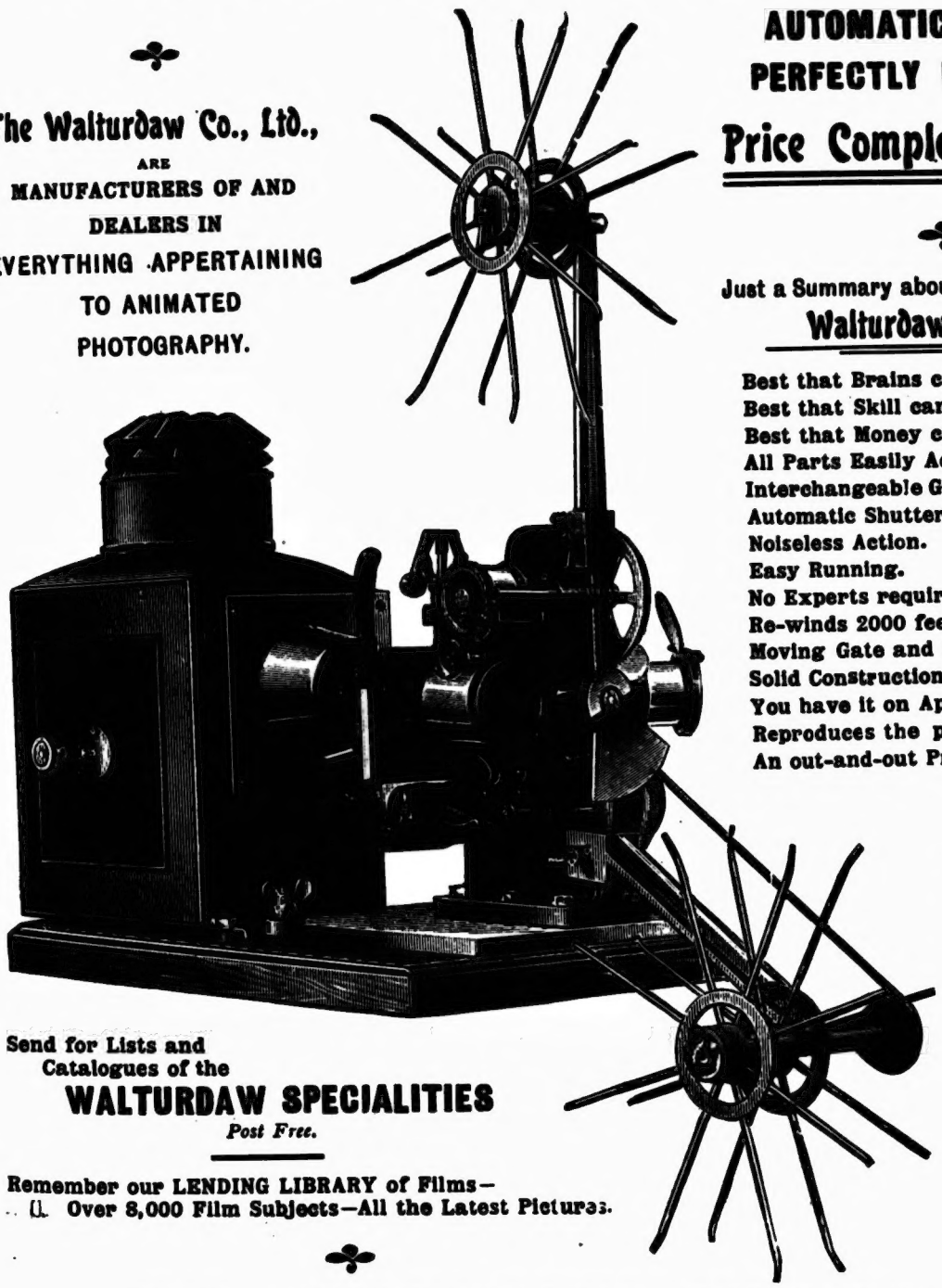

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WE are gratified that subscriptions are rolling in from all parts; but what we are even more pleased to find is that voluntary testimony is borne to the utility of our magazine by those engaged in optical lantern work as a profession. With the present issue we have entered upon what is termed the "quiet season," but the numerous promises and assurances received from manufacturers and others show that our decision to publish this magazine without a break throughout the summer is fully justified. Although the summer is not a popular time for Lantern Exhibitions, many of our permanent places of amusement include lantern and cinematograph shows in their programmes throughout the year; whilst at our seaside towns much business is done through the lecture agencies. Apart from these facts it should not be forgotten that our journal during the summer will cater especially for those engaged in taking photographs with a view to making ordinary slides; and for those engaged in the work of preparing cinematograph subjects.

The Winter may be regarded as the busy time for the exhibitor and lecturer; the Summer, the busy time for the Animatographist; and it is the latter we shall strive to serve during the coming months, with hints from practical experience. Many advertisers have booked spaces starting with the August number; but we think they would be doing better than this, if they allowed their announcements to be made during the Summer months as well; thus keeping their names constantly in front of their clientele, with a corresponding increase of orders when the busier time arrives.

The Germans, ever on the *qui vive* for improving and commercially developing any suggestions which are likely to turn up trumps in the near future, have been very busy with the combination of talking and living picture machines. Our patent columns this month show how inventors have strived to obtain perfect synchronising of the two reproductions. Not only Germany but our English and French inventors are equally hard at work in a quiet way, and we hear that some very important defects have been overcome and, before another season is on us, we may expect quite a number of appliances which will tend to perfection in the combination.

Bearing out our statement in this month's chat on Animatography that the more simple and homely the picture the more it appeals to the audiences, we were struck with the reception of the subject, "The Order of the Bath," by the crowded audiences at the Palace Theatre. The commonplace topic of two youngsters in a tub, without any elaborate paraphernalia or rehearsal, and the face of the one taking kindly to the water and the other struggling in apparent agony are received with shouts of approval and no other picture (on which perhaps hundreds has been spent) has received such genuine applause.

Although the series of views at the afternoon matinees at the Alhambra were not very long lived or patronised by crowded houses they have certainly helped in popularising the films that were shown, for we have received many notices from the provinces in which the following is made a feature of the advertisements:—"Showing

the celebrated films called the Urbanora Series from the Alhambra, London." In connection with this matter, we think that provincial exhibitors will do well to copy the descriptive methods adopted at the Alhambra. The films exhibited on this occasion were rendered most impressive by the apt remarks made by Mr. Frank Stevens. This sort of thing necessarily envolves careful preparation on the part of the person describing the scenes, but the extent to which the value of the exhibition is enhanced, from an educational point of view, fully repays for the extra trouble taken.

But it is not only a good speaker on the platform that is required to ensure success in a living picture exhibition. "The man who turns the handle," should also be an expert at his work. We regret that in this direction many managers fail to place sufficient importance on this point, and too easily engage more or less incompetent men, because they offer their services at cut salaries. We heartily endorse the opinion of a Picture Merchant who, writing in the Theatrical Employee's Journal, says:—Few stop to consider, when cutting the miserable salaries usually paid to the average operator, the amount of responsibility which rests upon this long suffering manipulator of dangerous material. It is only when the inevitable happens and the "horse is gone" that those in charge begin to think of shutting the proverbial "stable door," and when an audience has been terrified into a panic, the place damaged by fire and water, and business seriously impeded, that employers come to the conclusion that a good man is worth a fair wage.

The inflammability of the film is no longer a secret, and even the most expert operator is liable to have an old and ragged film stick, break, or otherwise stop in the light beam and ignite, so that the most careful vigilance is necessary, as long as the intense heat and large picture is required; and a cool head can often avoid catastrophe, the seriousness of which has been, unfortunately, too often apparent.

Yet employers who run these enterprises allow their prices to be cut in order to compete with miserable outsiders who manage to get into the bill solely on account of their working for little or no profit; as long as prices can be cut, they most certainly will be, and managers are not slow in considering the lowest price instead of the best results, but as a rule, of course, they expect both. Whilst this sort of thing goes on, the operator's money is a secondary consideration and a miserable pittance, such as an ordinary coal-heaver or fish porter would consider bad pay, is offered, and, I am sorry to say, too often accepted and sought after. Of course, this cannot last for ever, and as the pictures seem to have formed a permanent turn in almost every hall, and are looked for by the public as part of their money's-worth, a time must come when, like all other injustices of this description, a remedy will be discovered and arranged effectually.

Do away with pictures, and the public will soon cry out for what they are just commencing to be educated up to, and to appreciate as a necessary item in the programme; but underpaying the operator, and thrusting inexperienced and amateur persons into the position, is tempting Providence, and is like sending a child with a lighted candle into a powder magazine. Some operators have wonderful luck, and experiment with impunity until they have mastered the details of the business, but others are not so lucky, and, after playing havoc in the "job," disappear into oblivion and try something else. As in every other sort of skilled labour, and where exact adjustment is required, the money should be in accordance, yet how many are there now who think they are doing the right thing by accepting 35s. a week?

A little slip through not knowing what to do at the right moment, or through an extra glass of beer, or sheer incompetence, and what disaster may not result? Give a man labourer's wages, and you may expect the same amount of interest taken

in the work as the average labourer is capable of, but pay your man decently and he will most certainly value his position, take pride in his work, and give the best possible value to his employer and all concerned. It's high time something was done, or some medium formed, through which, like all other such positions, preference should be shown to a man who is able, steady, and competent, and who will, in return for decent pay, consider and study the safety of the audience; rather than to the miserable outsider who will come for the least money possible to exist on, just for the sake of hanging to the fringe of the variety profession.

The Optical Convention which is to be held in London at a date towards the end of May, in the Buildings of the Northampton Institute, should be the occasion for Slide and Lantern Manufacturers to bring their best productions before the public. Here is an opportunity of arresting the attention of the leading scientific men of the day, which the progressive manufacturer should not fail to seize. Instrument makers are invited to assist the committee by sending, for the purpose of the Exhibition, typical instruments and apparatus of their manufacture, and, if necessary, by appointing a representative to explain their construction and action and to answer enquiries. It is not proposed to ask exhibitors to pay for space, but a small sum, to defray out of pocket expenses, would be charged to each firm whose goods are shewn. This charge is not to exceed one guinea for each Class in which goods are shewn. The Honorary Secretary, Mr. F. J. Selby, M.A., Elm Lodge, Teddington, Middlesex, will be pleased to supply any information required by manufacturers.

On another page of this issue will be found particulars of a Postal Lantern Slide Club by Rev. T. Perkins. The workable basis pointed out by the author should lead secretaries of camera clubs to formulate similar postal clubs, as it is evident this method of circulating slides proves beneficial to each member, especially to those who cannot easily attend meetings of lantern societies.

"The British Association of Amateur Photographers" is the proposed name of a new Society being organised by the Editor of *Camera Notes*, H. Roland Bateman, Esq. The annual subscription is to be 1/- The chief aims are to be: To encourage the photographic art amongst the general British public. To safeguard their interests in every possible way. To secure concessions from various companies which would be beneficial to all photographers. To arrange and promote an International Exhibition, to be held at stated periods, at which all countries would be represented. We wish the scheme great success, and would suggest that lantern slide makers be placed in a position to benefit by the Association.

A HINT FOR OVER-EXPOSED SLIDES.

MANY people will find that some of their slides are over-exposed. This is seen by the image coming up and at once rapidly darkening. If the slide was now fixed it would be flat and of bad colour. Instead, however, of removing the slide from the developer and fixing, continue developing it till it is very dense and very much over-developed. Then after fixing, the slide must be placed wet with hypo into a bath of ferricyanide of potassium. To prepare this bath add a few crystals of the above salt to a dish of water—in fact, enough to make the solution a canary yellow. The slide in this bath rapidly reduces, and the operation must be continued till the density is considerably thinner than a normal slide should be. Wash thoroughly to get rid of hypo, and bleach the slide thoroughly in the following—in fact, it will be impossible to over-bleach it:

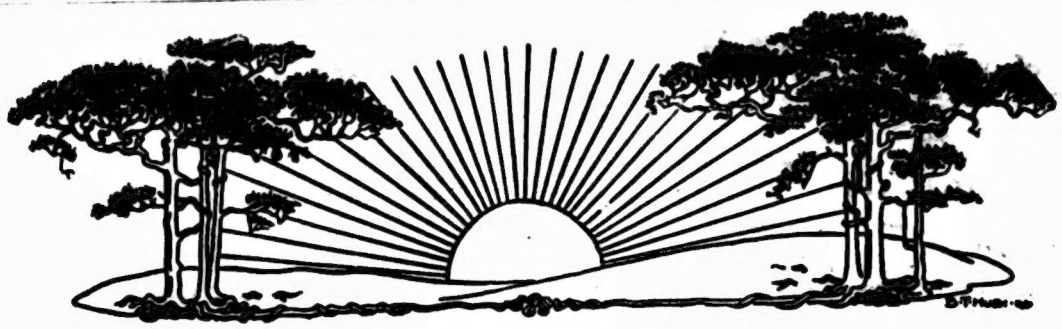
Mercurie chloride	50 grs.
Potass bromide	50 grs.
Water	5 ozs.

After this wash well to get rid of the mercurie chloride and blacken with

Ammonia 880	1 oz.
Water	20 ozs.

The slide will now be found to be crisp with perfect gradation and a very pleasing colour.

This method is particularly useful for getting good slides from very thin negatives, only care must be taken in the first place not to over-expose. For seascapes, if the exposure is made so as to get a black tone, and the slide is under-developed, and after fixing and washing well is only intensified, a most intense beautiful purple black will be produced almost as fine as wet collodion.—F. C. D.—*Photographic News.*



SCREENS AND THEIR ERECTION.

By the Showman.

EVER since the Lantern sprang into existence, the question of providing some kind of surface on which to receive the projected image has been one of the principal considerations of the exhibitor, and the various factors governing the case have varied as the years rolled by. In the days when an exhibition of hand-painted dissolving views by means of a pair of lanterns lit by sperm oil lamps was considered a satisfactory entertainment, a transparent screen about nine feet square might suffice, but at the present time the electric-lit cinematograph in a large hall often makes the use of a screen thirty feet wide or so desirable, if not compulsory.

Screens are of various kinds. In some of the works devoted to the lantern we are told that an even wall surface, specially prepared with plaster and paint, makes an ideal screen as long as it is kept clean, and this is no doubt true; but as in many years' experience I do not remember meeting with more than one example of this class, we may consider such screens so rare as not to be worth further discussion. Next we come to rollable screens attached to some kind of woodwork, generally a roller at the bottom and a batten at the top. Such screens are generally of the opaque variety, calico or similar material being either painted on one side or faced with plain white or silvered paper. On account of the good results obtained such screens are considerably favoured by many exhibitors, and are extremely useful as fixtures in any building, as when out of use they can be rolled up out of the way and so kept clean. Taking such a screen about the country is, however, a very different business. Up to nine or ten feet there is no great difficulty, but with the addition of every foot the trouble increases until in a rolled up twenty feet screen we have an extremely awkward package.

Under these circumstances it is not to be wondered at that the majority of screens in everyday use are simple sheets made of what is known as plain bleached calico sheeting, which can be folded or rolled into bundles of any shape or size, and packed in bags, boxes, or baskets according to the taste and fancy of the user. On the other hand, the fixing up of such a screen so that it appears tidy and without wrinkles is not always easy. In the case of a roller screen we fix our batten aloft, lower the roller, and if our screen is a well-made one it at once appears fair and square. Our calico screen, according to its size, requires different treatment, and this is just where the skill of the exhibitor comes in. A common plan is to fasten such a screen to a frame generally by means of tapes sewn at intervals to the edge all round, the frame being either a home-made one, consisting of strips of wood bolted together, or the kind sold by opticians, consisting of a number of rods of equal length jointed together by ferrules and corner pieces, there being in either case generally some kind of foot attachment which keeps the whole vertical when erected. Such frames are, in the smaller sizes, often a convenience, sometimes a necessity, especially in the case of an exhibition in a private house where curtains, pictures, etc., preclude the use of any other method, or in a schoolroom, where maps cover the wall or window frames project.

The disadvantages of a frame are that the package of rods, ferrules, corner pieces,

and other parts add considerably to the exhibitor's luggage, and is liable to be rendered useless by the loss of any one part. Many years ago an alteration, generally hailed as an improvement, was to substitute rods of bamboo for the solid turned wooden rods hitherto employed, and although great lightness was thus secured, the liability of the ends of the bamboo rods to fracture soon manifested itself, and, unless taken the greatest care of, such a frame in constant use possessed a very short life. Again, in the larger sizes, erecting and taking down such a frame was a longer and more troublesome job than most people cared about, and not only so, but the screen when up was not always as well hung as could be desired, and a certain want of straightness in the bamboo rods sometimes gave the frame a wobbly and lopsided appearance which was anything but satisfactory.

And so it comes about that to-day the most practical way of hanging a screen of any size is to haul it up by means of lines passed through screw-eyes inserted in woodwork forming part of the building. The appliances necessary are simple, inexpensive, and to be obtained almost anywhere. First we want some lengths of sash line, the plaited kind generally known as "Austin's patent" is best, as this does not twist round like a screw when hauled through eyes. It should be fairly heavy, and the length about eighteen yards. Screw-eyes just large enough in the eye to pass the thumb through, and a gimlet or bradawl complete our requirements. The screen should have a piece of sash line passed through the top hem, and a loop formed just outside the corner, string attaching the screen itself to the loop. The reason of this is that should the line stretch unduly, the string will give way before the screen tears, for it must be remembered that we wish to support our screen, rather than pull it apart by unduly straining the top corners. In about four halls out of every five, woodwork will be found up aloft in some position suitable for receiving the screw-eyes. It may be in the form of a beam or the wooden lining of the roof or a window frame or sill, and inserting the screw-eyes at a sufficient height to allow for the sag of the screen in the middle if the hall is a wide one, it is only necessary to pass a length of line through on each side of the hall, fasten one end through the loop at each top corner of the screen, haul up and tie lines to screw-eyes already placed in the floor.

It may happen that the woodwork in the hall is so placed as to bring the screen too near the front of the stage, or too near the back wall to clear gas brackets or other obstructions. In this case we arrange two other lines through two other screw-eyes suitably placed, and attaching them to the top corners of the screen as before, draw the screen back from the front of the stage, or forward from the back wall as the case may be. If it is impossible to insert screw-eyes sufficiently high to haul up a screen clear of the floor, it may be raised by inserting a light pole each side of the screen under the lines close to the top corners. In the fifth hall mentioned before there may be no woodwork whatever visible, and the walls resplendent with that decorative beauty which is the *bete noir* of the exhibitor. Possibly a thoughtful executive may have ordained that staples containing rings should be inserted in the walls at a fair height, possibly under the impression that the place would one day be used as a cattle market. These rings not being high enough, it is not a very difficult matter to secure wooden uprights to them, and with screw-eyes in the uprights proceed as before. Failing rings, wood may be wedged against the ceiling in a slightly slanting position, and so, being unable to pull forward, will answer admirably, and if care is taken not a mark need be left on the whitewash.

Other instances call for special treatment, such as erecting scaffold poles, lowering lines through ventilating gratings in the ceiling, and tacking the screen to a batten to stretch the top, but the instances cited will cover the bulk of cases. Once a screen is up, the bottom corners may be moored to screw-eyes in the floor, and the sides stretched by string lines as may be found desirable. Keep your screen off the floor by lowering it on to chairs or forms, fold it carefully, always keeping one side for the face and always starting to fold it face inwards, and you will be surprised at the length of time you can keep it out of the laundry.

LANTERN SLIDE POSTAL CLUBS.

By the Rev. T. Perkins.

I HAVE for many years been the Hon. Secretary of a Lantern Slide Exchange Club, which during the winter months circulates four boxes of slides among its members, and in order to excite a little more interest in it, offers prizes, though not of any great value, to those who obtain the highest, and second highest marks for the sets of slides that they have contributed to each box. There is room for many such clubs, as necessarily the number of slides, and therefore the number of members of each club, must be limited by the regulations governing the transmission of parcels by post. Not more than about sixty slides can be sent in a suitable box, together with note book and voting papers. Thus, if each member sends four slides, the club may consist of fifteen members, if three slides of twenty members. The smaller number of members is of advantage, for not less than four days can be allowed for examination of the slides and transmission of the box to the next member; and with twenty members about twelve weeks would be required for the box to make a complete round. In fact, about ten or twelve members is a very convenient number, as in that case one box will finish its round before the next need go off, and votes, criticism, and requests for exchange can be sent off with it.

The plan adopted in our club is to set subjects in the following order for each season:—Round 1—Landscape or Sea Views. Round 2—Architecture. Round 3—Figure Subjects, Street Views, Animals, Still Life. Round 4—Miscellaneous. In the fourth round a member may enter any subject whether included in the other rounds or not; this arrangement was made with the view of enabling a member who specialises in one subject to contribute to at least two rounds. We have printed slips for voting and criticism, containing the following form, repeated as many times below each other as required by the number of members.

Member's Name.	No.	Marks	Criticism.
	1		
	2		
	3		
	4		

The Hon. Secretary writes in the first column, in order of circulation, the names of members who have sent in slides, each member having previously numbered his slides. The blank spaces in the columns headed "Marks" and "Criticism" are filled up by each member, who, when he sends on the box, detaches his voting sheet from the packet, and sends it by

post to the Hon. Secretary, adding his signature, date of receipt and despatch of the box, and the name and address of the member to whom he has sent it. The Hon. Secretary also makes up a little note book with a few more pages in it than there are members. At the top of a page he writes the name and address of the member, and below, opposite to the Nos. 1, 2, 3, 4, the titles of the slides contributed by that member corresponding to these numbers; below is a space in which the member may enter the names and numbers of slides by other members that he would like to take in exchange for any of his own. A few blank pages will remain at the end of the note book, in which any one may make suggestions and ask questions. All members, whether they have contributed slides or not, are required to assign one of the marks 4, 3, 2, 1, or 0 to every slide except those they have themselves sent in. The Hon. Secretary, on receipt of the voting slips, enters the marks on a sheet of paper, and when all have been received adds up the totals and prepares a list in order of merit as determined by these totals. This sheet, the note book, and all the voting sheets clipped together, are sent off in the next box despatched by the Hon. Secretary. The voting sheets of the fourth round are circulated in an envelope. Members, after seeing which of their offers of exchange are accepted, are left to see themselves to these exchanges being carried out.

As a rule, since so many vote on the slides, a fairly satisfactory order of merit is obtained, but several causes lead to great differences in the estimates individual members form of each slide. First there is the idiosyncracy of the voter—one perhaps judging chiefly according to the technical excellence, another according to the pictorial quality of the slide; another disturbing element is the intensity of the light used by each voter, and the various distances of the screen from the lantern. Thus a member using a weak illuminant may condemn a slide as over heavy, to which another using a powerful light will assign high marks. I have, however, tried to impress on members using an oil lamp, that they should project the slides on a sheet of white cardboard not more than about 2 feet square, while those using more powerful lights may well use a screen 6 or 7 feet square.

I should strongly advise all amateur lantern slide makers to join such a club as the one I have described, as it gives them an opportunity of comparing their own work with that of others, and also of obtaining valuable additions to their own stock of slides by means of exchange.

A KINEMATOGRAPH FOR THE BLIND.

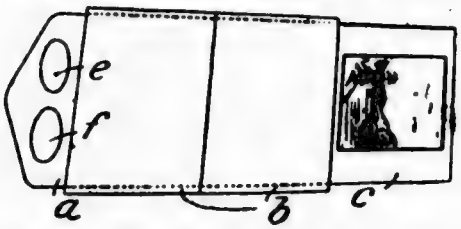
SOMEWHAT on the principle of the raised-letter Bibles for the Blind, a French physician, Dr. F. Dussand, has constructed a wheel of life. Simple subjects, such for instance as a bird on the wing, are embossed on opposite sides of a revolving disc, the latter is made to revolve by suitable mechanical means, whilst the blind person places the forefinger of each hand together lightly, the disc being allowed to pass between the fingers. The result is that the sense of touch is stimulated with the various phrases of a bird in flight; and the observer thus gains a knowledge of the subject's movements. In this way it becomes possible to give to blind persons accurate ideas as to the nature and movements of various animated subjects; but at the elementary stage of the tuition, it is found necessary to limit the range of subjects to those which have a recurrent attitude. Hence, horses running and birds flying, are found suitable. The observer who has become abnormally sensitive and alert to the slightest change of form in the reliefs; is able to follow a long series, which may then be embossed on rolls of celluloid. It is impossible to say to what extent this form of education may be developed; but it is certain that, where it not for the expense involved in making the original dies, the system might be adopted in all our blind schools with great benefit to the scholars.

Assassination of the "Grand Duke" Cinematographed.—Paris is to have the opportunity of witnessing an ingenious reconstruction of the recent tragedy at Moscow, thanks to the enterprise of the owner of a cinematograph. This gentleman, not being prophet enough to foresee the events he now seeks to illustrate, has remedied this deficiency by enlisting a score of supers and an army of workmen, painters, and decorators to re-enact the tragic scene as he imagines it. Such methods are not new. At the time of the Boer War many realistic battle-pictures were cinematographed hundreds of miles from the scene of operations, and, to mention an even greater parallel, the murder of King Alexander of Servia and Queen Draga was reproduced by carefully selected mimes in a field in South London.—*Sketch*.

Stereoscopic Notes.

A Postal Stereoscope.

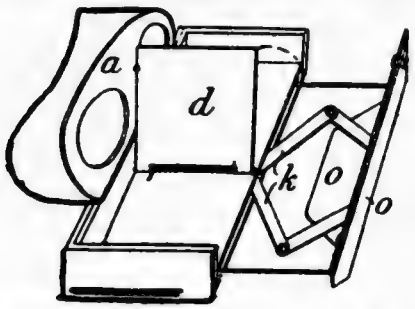
The accompanying figure shows a card stereoscope adapted for transmission through the post as a letter card. It consists of flaps A, B, and C. The flap A is made with eyeholes E, F, covered by



coloured gelatines, say red and green respectively. The stereoscopic picture is a compound impression, consisting of the dissimilar elements of an ordinary stereogram. The impressions are approximately superposed colours, matching those used on the eye-pieces. It will be noticed that this invention is similar, if not identical with, that described on page 6, No. 1 *Optical Lantern and Cinematograph Journal*, under the name of "Spectrograph." The patentee of the present contrivance is K. R. Söderbäum, 29, Biblioteksgatan, Stockholm.

A New Collapsible Stereoscope.

G. Lézy, of 17, Rue Maurice Meyer, Paris, has invented the stereoscope here illustrated. The



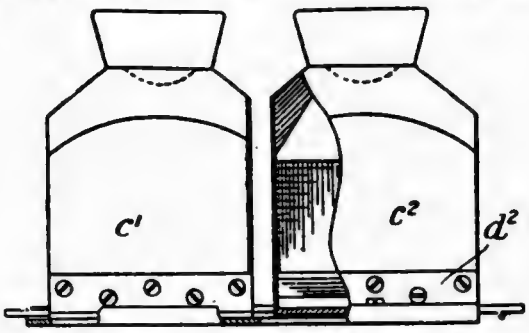
hood A and partition D are hinged so that they can be folded down when the instrument is not in use. The eye-lenses are fitted in sliding mounts, so that they can be adjusted to the inter-pupil distance. The slide carrier O is mounted on, and focussed by, a lazy-tongs movement. The arms K are slotted to receive a common pivot, which enables one side of the carrier O to be adjusted nearer than the other.

The Stereoscope in Libraries.

We understand that seven stereoscopes have been placed in Mile End and Limehouse Public Libraries, and a large number of views on educational subjects provided. These will be issued to the public in the same way as books. In the Free Library, Salisbury, there is also a stereoscope with a selection of local subjects always on view for visitors. This sort of thing is just what should be encouraged, as the publicity thus given to the beauties of stereoscopic work cannot but help to popularise the twin photograph. Each stereoscopic enthusiast should present the Committee of the local free library with a nice instrument on stand (detachable), together with a set of stereoscopic views of local interest. The set should be supplemented from time to time with fresh subjects, thus keeping the selection up-to-date as much as possible. We hope that members of the United Stereoscopic Society will take the hint, and put the suggestion into practice. The author's name and address is permissable on the back of each view, and this should be sufficient compensation in the way of an advertisement, apart from the pleasure derived in doing somewhat towards making a beautiful branch of photography more popular.

Stereoscope with Pupillary Centres Adjustment.

The method generally adopted for varying the pupillary centres in a stereoscope is by altering the displacement of the lenses, or increasing their refractive index by revolving the lenses in their mounts by means of rackwork. To these methods a German inventor, Rohr. M. von Carl-Zeiss-Strasse, Jena, Grand-Duchy, adds the provision of moving the views. As shown by the accompanying cut,



each lens is fitted in a carrier, as c^2, to which also a slide holder D^2, for one separate half of the usual stereoscopic slide is fixed. In this way the optical centre of each photograph, etc., having been adjusted in the axis of the corresponding viewing lens, the two carriers may be separated to adjust for the inner-pupil distance without disturbing the first adjustment. The carrier c^2 may be fixed to a slide in which the other c^1 is adapted to slide.

Hint for Stereoscopist.

In successful stereoscopic work there are several important points to be remembered, and we may briefly mention a few here. When trimming and mounting the pair of prints, see that corresponding parts in the two pictures are exactly on a horizontal line. Never allow the separation of corresponding foreground objects to exceed 2¾ inches. All objects in the composition should appear to lie at a plane *beyond* the margin of the combined image when examined in the stereoscope. To obtain this, trim so that there is a little more of the subject included on the left hand side of the right print than there is at a similar point in the left print.

The Human Eye, showing the Muscles and Optic Nerve.

EYES

AND

How to Use Them.

BY

PROFESSOR GOLDING.

AN eccentric preacher of some local celebrity in the early part of the nineteenth century, who was accustomed to travel up and down certain districts in rural Wales, addressing audiences in such rooms or buildings as the villages afforded, and enforcing his oratory by brandishing a walking stick of formidable proportion, is said on one occasion to have been endeavouring to demonstrate the proposition that "light is not in the eye" to a village congregation, assembled in a cottage by the light of a single candle. After arguing the point at considerable length and with much vehemence, he suddenly brought matters to a climax by extinguishing the solitary candle, exclaiming triumphantly, "Now, will you believe that light is not in the eye?" The demonstration was practical and tolerably convincing, since the audience was left in darkness without any ready means of re-lighting the candle, the lucifer match being still unknown in that district.

But if light be not in the eye, the further enquiry may be suggested, "Where, and what is it?"

The theory of Sir Isaac Newton that light was due to minute particles propelled from the surface of the sun and of all luminous bodies with great force and at a high speed, travelling unopposed through space until they reached and entered the eye of the observer; though held with great certainty, and ably defended by the eminent philosopher, has long since been abandoned by all, or almost all, men of science, in favor of Young's theory that light is due to waves, traversing some almost infinitely delicate and elastic medium which occupies all space, even penetrating between the ultimate atoms of the densest and most solid bodies without hindrance or difficulty, and that these waves travel on until they reach something which they can disturb and to which they can impart something of their own motion, and thus produce the sensation which we call light, or perhaps cause the body so disturbed to become itself luminous and thus a source of light to be passed on in other directions, the original wave expending its own force in producing this effect, and ceasing to travel farther. This medium, of which we know practically nothing beyond the fact that it possesses the property of receiving and transmitting wave motion, we agree to call Ether.

If, as one of our leading men of science has expressed it, all Nature were not in a state of "constant, unvarying, beautiful unrest," we could have no knowledge or conception of the existence of anything beyond our reach. In fact, we know of such things only by their movements and their power to communicate movement and pass it on.

We find then, that these light producing waves, emanating at first from some very distant bodies such as our own Sun, which, by virtue of their heated condition, quivering and vibrating in every part, communicate this form of motion to the surrounding

ether; are capable of travelling at a speed of over 186,000 miles in a second of time, traversing the entire distance between the sun and the earth in about eight minutes, while the longer and slower waves of sound are travelling only about 1,120 feet in the second, or occupying five seconds to travel a single mile. Hence we can see the flash of lightning, or the puff of smoke from a distant gun, many seconds before we hear the thunder, or the report of the explosion.

We are conscious of various differences in light from different sources, not only in its degree of brilliancy or intensity, but also as to quality and colour, some objects, or the light we receive from them, appearing colourless, while others display tints of varied hue and are more or less uniform in appearance.

But when we call to our aid some method of analysing the light by passing it through a prism or triangular piece of transparent material such as glass or crystal, we find that our white light is really composed of all known colours, and that they are blended together in definite but not equal proportions, the disturbance of which causes the whiteness to disappear, the absence of one colour or its deficiency causing those which remain to assert their presence, so that the effect of colour is usually due to the removal of one or more of the constituent parts of white light rather than to the addition of anything to it. Still, some bodies, such as Sodium, when rendered incandescent or sufficiently hot to become luminous, do give monochromatic light, or that consisting of one colour only, in this case yellow, and we find that if a so-called coloured object be viewed by such light or by any in which its special colour is not present, that colour cannot be seen and the object appears nearly black. For this reason ordinary gas or candle light does not enable us to judge well of colour, being itself decidedly yellow, and we find that the appearance of most things seen by its aid differs very widely from that which they present by daylight, or by the light of the electric arc, which contains the colours necessary to form white light in fuller proportion than most artificial illuminants do. For this reason also the light from the arc or from the incandescent lime under the oxyhydrogen flame, are preferred for use in the Optical Lantern, not only for their greater brilliancy, but also for their better rendering of colour values, than that afforded by the older methods of illumination.

But what is it that causes the difference in these colours which go to make up white light, and how is it that objects not themselves luminous display such a variety of colours when the same white light from the sun or any other source falls upon them? The first difference we may compare to that which exists between the different notes of the musical scale, and we may define it as one of pitch, the higher note being due to a larger number of waves arriving in the second than one lower in the scale, but shorter as measured from the crest or summit of one wave to that of the following one. The lowest note of the visible light scale is a deep red, and the highest the extreme violet, and the difference in position in the scale between these extremes is less than a single octave, against the eleven octaves or thereabouts of sound which can be perceived by a sensitive ear. The scale, however, extends far beyond the limits of visibility in both directions, the infra-red rays, which produce the most intense heat, being traceable several octaves below, and the ultra-violet, which act most energetically on the photographic plate, at least as far above the visible spectrum.

As to the colours presented by non-luminous objects when viewed by white light, these bodies, in common with all others, absorb a certain part of the light which falls upon them, this being expended in producing motion, usually heat, in the body which absorbs it. Another portion is reflected, or caused to rebound from the surface it strikes, without producing any effect upon it, while if the body be in any degree transparent, a third portion will pass through it, and serve to illuminate whatever may lie beyond it. Now as to the portion absorbed; some bodies absorb light of all colours nearly equally, and their absorption merely reduces the light which they return by reflection without altering its quality, unless it has penetrated a short distance before reflection, which sometimes occurs; while others possess the property of selective absorption, retaining light of certain wave lengths only or in a greater degree than the rest, so that light which has

fallen upon them is returned deficient in rays of that particular pitch, and appears of the tint due to those which remain unabsorbed. Such substances if transparent, will appear of one colour when viewed by transmitted light, and of another when seen by that which they reflect.

Photography in natural colours is the dream of the ardent experimenter or theorist, a dream which, like the mirage or the rainbow, eludes the grasp in a most provoking manner, though indirect methods of combining several pictures differently tinted and seen as one, have to some extent supplied the desired result, which in its simple form appears as far from realisation as ever.

Well, we have to consider that colour, after all, is a sensation perceived by the observer, and not a property inherent in light or in the objects which appear to possess it. A beam of light entering the eye appears to be white or coloured according to the rays included in it and the proportions in which they are present. If a similar beam should fall upon a photographic plate, each of the various rays present will affect the sensitive film with its own special degree of energy; but the work in which they are engaged will be the same in every case, reducing a metal such as silver or platinum from its compounds, or rendering gelatine insoluble. The rays which we recognise as red and yellow may probably contribute little to the result; the blue and violet much more, and some of the ultra-violet most of all, but their effects will differ only in the quantity of the sensitive material which undergoes alteration during the time of exposure, and not in the quality of the deposit produced.

With the eye it is widely different. Here we have a delicate and exquisitely sensitive organ, specially adapted to receive and respond to the impulses given by the light waves, and to convey them by a special system of nerves to the brain, where they are interpreted as colour sensations, of which we generally consider seven to be recognisable: red, orange, yellow, green, blue, indigo, and violet, though there are innumerable intermediate shades, and these can be simplified and resolved into three primary sensations, red, green, and violet, the combinations of which with one another form all other colours, and therefore form white if all three are present in due proportion. In examining the structure of the eye we have first the eyelid, which serves the double purpose of protecting the delicate structures within, and of keeping the surface of the eye constantly clean and moist by the aid of the watery secretion, which, when it flows more rapidly than is needed, takes the form of tears. These, as we know by experience, are liable to flow under the influence of emotion, whether pleasant or the reverse, or when irritation is produced by any foreign object such as a speck of dust, a small insect, or any other intruding body finding its way into the parts behind the eyelid. A blow or even a slight touch on that most sensitive organ will have the same effect, the fluid being instantly supplied in copious streams to wash away the offending body or repair the damage done. It is, indeed, almost beyond our power to prevent the eyelid from closing suddenly at the very approach of anything which threatens to touch the eye, the action being due to what may be regarded as involuntary muscles, those which act without any conscious effort of the will.

But though the eyes are so extremely sensitive to the slightest touch, they are much less so than many other parts of the body to heat and cold. These, unless very extreme, can do the eye little or no injury, and do not therefore need to be guarded against with the special care which is exercised on the approach of any real danger. Besides, if the eyes are to do their duty and be of any real service to us, they must remain open and uncovered while in use. Almost any other organ can be covered for protection against the inclemency of the weather, or excessive heat or cold, without its usefulness being wholly prevented or even greatly limited, but this is not the case with the eye. The only part of it which is especially sensitive in this way is the tear-gland in the corner nearest the nose, which might possibly be frozen if not protected from extreme cold, or injured by too high a temperature, and the little fleshy part in which it is placed is, in people such as the Esquimaux, whose lives are spent amid the rigours of an Arctic climate, protected by the surrounding tissues of the face growing over it.

(To be Continued.)

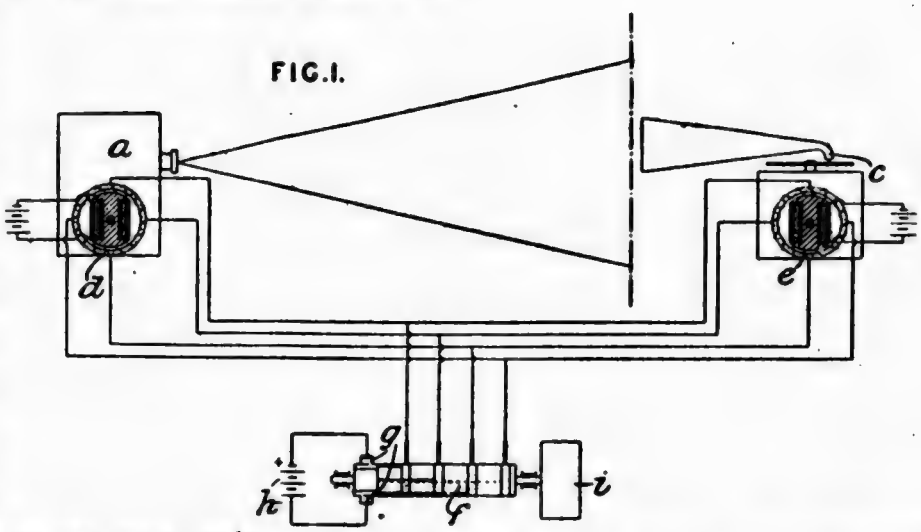
PATENTS.

Phonographs and Kinematographs.

No. 22,566. MESSTER, O., 151, Friedrichstrasse, Berlin, N W.

A battery *h* and a commutator *f*, driven by clockwork *i*, form a kind of two phase generator which supplies current to the two synchronous motors *d*, *e* driving the kinematograph *a* and phonograph *c* respectively. The commutator *f* has four insulated thin plates to which current is supplied by the brushes *g* from the battery *h*, and each plate is connected to one of the coils of the motors *d*, *e*. The speed can be regulated by the driving clockwork. The commutator may consist of two portions on the same shaft, each part having its own motor, leads, and battery.

FIG. I.



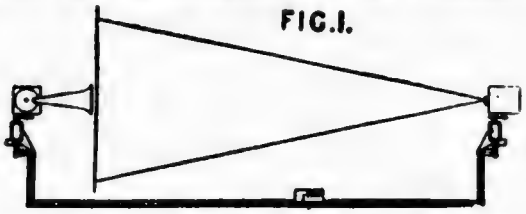
No. 22,563. MESSTER, O, 151, Friedrichstrasse, Berlin, N.W., Germany.

In order to obtain phonographic and kinematographic records for simultaneous reproduction of singing, speaking, or the like, a phonograph record is first taken at close quarters, and from this a matrix and copies are produced if satisfactory. The kinematograph record is then taken, the action being repeated to the time given by the phonographic reproduction, the phonograph being placed out of the field of view. Starting-marks are made on the records for obtaining synchronism.

No. 22,564. MESSTER, O., 151, Friedrichstrasse, Berlin, N.W., Germany.

Synchronism, in the reproduction from phonographic and kinematographic records, is obtained by

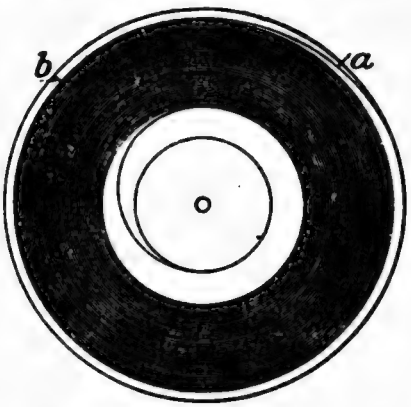
FIG. I.



connecting electrically three points in the armature windings of each of the motors. The connections are made by means of slip rings and brushes as shown in the Figure.

No. 22,565. MESSTER, O., 151, Friedrichstrasse, Berlin, N.W.

To ensure that the reproducing-point starts at exactly the right place and time, the record is pro



vided with a branch line *a* on which the point is placed. Also an initial mark *b* is placed on the record to which the point is brought along the line *a* by turning the record with the hand.

THE SCIENCE OF ANIMATOGRAPHY.

(By the Editor.)

Chapter IV.

ALTHOUGH we have used the term, "Panoramic Base," we have not overlooked the fact that this is altogether a misapplied name. As we have already pointed out, a camera used on this form of tripod head is made to turn on a central axis, or revolve on a stationary turn-table. We are writing on the "Science" of Animatography, and were we to allow this error on the part of manufacturers to pass without correction, we should not be true to our profession. If we were asked to define what constituted a Panoramic Base, we could give several answers, thus:—Any apparatus that is capable of moving the camera in a right or left hand direction at right angles to the axis of the camera lens; or, again, any moving vehicle, such as a train, motor, cycle, and so on upon which the camera was carried.

Contrary to this, the so-called Panoramic Base now on the market is not designed to move the camera from its stationary position; it is not a fixture certainly, but it does not move the camera in a panoramic direction as one would naturally suppose from its name. It is more than likely that our manufacturers were led to give the apparatus this name from the fact that film pictures, taken under such circumstances, produce an illusion of panoramic pictures when such are projected upon the screen. But it is easy to see that this does not justify the name. In looking at a landscape with our eyes, we produce a panoramic image upon the retina as the eye turns in its socket, without the head having to move; but for this reason we do not say we have panoramic eyes, or that the socket of the eye is a panoramic base. This, however, would be no more absurd than it is to call the base referred to above a "Panoramic." A correct name would be either of the following—Turn-table, Revolving Head, Accommodating Base.

Having given some attention to the photographing of what may be termed topical subjects, we may turn for a few moments to pre-arranged work. Manufacturers have not found it difficult to obtain suggestions for subjects, but the practical carrying out of them is quite another thing. Just as in ordinary photographic compositions, only a small percentage of the pictures taken can be considered successful. Success in a film subject is only obtained when technical perfection is combined with an evident display of genius in the plot conceived, and then carried out to perfection. This happy combination is rare, but always worth the seeking. There are a few subjects which stand out as especial successes in the film trade, and it is surprising to note the simplicity of these subjects.

A touch of real life, unconscious, perhaps, of being photographically recorded, toned with a pleasing bit of humour—simple, true, and amusing. Another, telling a touching story that contains pathos, appealing to the heart, stirring the emotions, and making the observer forget for the moment he is looking at a picture, and not at the real thing in life.

Before the amateur proceeds to take subjects, therefore, he should recognise these secrets of success, and endeavour to follow them out in his conceptions. He must detect these and all the other media by which to attract and gain approval. A film subject running to, say, five hundred feet, may be literally packed with interest and with power. Avoid that overcrowding which consists of many actors, whose actions it is a physical impossibility to follow. Crowd the film rather with interest sustained in a simple yet powerful manner by making the subject speak its meaning—tell a story clearly—and suggest a moral, without suspicion of dogma.

It is a redeeming feature to a technically imperfect film, when the subject gains the approval of an audience; but this can only be expected when the production is either "screemingly funny," "current history of great importance," or "sensational in the extreme."

There are many things possible in a cinematograph projection which are impossible in life; there are many things in real life possible to the cinematograph, but which should never be repeated. Only that which is of permanent value and worthy to be reproduced, which tends towards the uplifting of the human intellect; only that which can refine the mind and stimulate endeavour to be noble should be attempted by those who desire success with their reproductions.

(To be Continued.)

[Letters which are of general interest to our readers are always welcome. They should be short and to the point, and must be accompanied by the name and address of the writer, as a guarantee of good faith, though not necessarily for publication. The Editor is not responsible for the opinions of his correspondents.]

TRANSPARENT SCREEN.

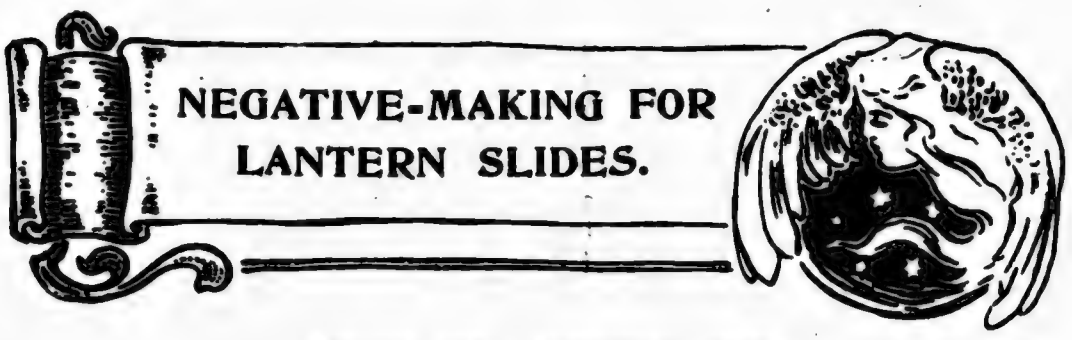
Sir,—Will you kindly give me a little information through the columns of your *Cinematograph Journal?* I have been thinking of projecting the animated pictures through the screen (like West's), and I would like to know what is the best material for making the screen. I should feel greatly obliged for the information.—Yours, etc., J. D., Mackintosh Institute, Cardiff.

[Transparent screens can be made of thin cotton sheeting, or, what is still better, of muslin. Before using, thoroughly damp the screen by spraying with a syringe. If only a small picture is required, a sheet of tracing paper stretched upon a wooden framework answers the purpose well.—ED.]

LANTERN SLIDE CLUB.

Sir,—On page 104 you state you do not know a club for slides only. Permit me to say I am secretary of one that was founded in 1889, and which has members not only in London, but in many counties, also in Ireland and Scotland. I shall be pleased to give any information to any one wishful to join such a club, although its current season, the 17th (September to April), will soon close. Subscription 1/- annually.—Yours, etc., J. S. HAWKER, Mutley House, Plymouth.

[Interested readers should see also the Rev. T. Perkins' particulars of "Postal Slide Clubs," given on another page in the present number of this journal.—ED.]



NEGATIVE-MAKING FOR LANTERN SLIDES.

(*Reprinted from "Photographic Scraps."*)

WITH the winter lantern-work over, and the ever-strengthening March sunshine luring the camera-man out into the field, it may seem to many rather late in the day to discuss any question appertaining to lantern slides. Those however, who believe, with the writer, that a photographic picture is never so fine as when thrown on the lantern screen, know also that the work of the slide-maker does not by any means begin or end with the turning out of a good transparency.

The true slide enthusiast has his special art in view all the year round; and the brilliant ten-foot picture, with its delicate light and shade, and subtle atmosphere, unattainable in the finest paper-print, is never so clearly present to his mental vision as when he is tramping through the country on a blithe spring morning, camera-pack on shoulder, watching every charm in the prospect that unfolds itself upon his way.

The first essential for the field-photographer, bent on negative-making for lantern work, is a camera that shall be not only light and rigid, but of good size. Undoubtedly, for slide-making by reduction, the larger the negative, the greater will be the technical excellence of the resulting picture. But when the apparatus has to be carried through a long day's march over all sorts of country, the question of weight becomes an all-important one; and experience proves that, under these conditions, nothing larger than half-plate is practicable, at least on any walking expedition worthy of the name.

My own half-plate kit, including tripod, focussing cloth, carrying-strap, and three double dark-slides loaded with Ilford Films weighs a trifle over nine and a quarter pounds. The focussing-cloth is made of double material waterproof outside and black cloth within. The camera, lens, and shutter fold up together in one piece, and each dark slide fits into a stout paper sheath. The whole is wrapped up in the focussing-cloth, which takes the place of the ordinary case, and is carried over the shoulder by means of the tripod. In this way I have found it possible to cover many miles of difficult country without fatigue, and have secured pictures in altitudes unattainable with more bulky apparatus.

Of the choice of subject, with special view to lantern-work, it is perhaps unnecessary to speak. There is practically no limit in this direction. My own experience, however, is that where a negative gives a good print, it will afford a lantern slide of invariably better quality; and the full resources of a negative, however good, are never really known until a picture from it is viewed upon the lantern screen.

The question of exposure, in landscape work, is a very important one to the photographer having mainly the production of lantern slides in view. Perhaps the oldest and the soundest advice given to us by the text-books is to use a slow plate and give a long exposure in landscapes; and nearly seventeen years' use of the old Ilford Ordinary have proved to me the value of an emulsion of moderate speed for this kind of work. But the difficulty with time exposures lies in the fact that, at least in a breezy country like England, an absolutely still day is a very rare thing.

In the the calmest weather, when hardly a breath seems stirring, close observation will often reveal the fact that tree-tops, apparently motionless, are really swaying gently to and fro; leaves are fluttering; a ripple of life is flowing over the meadow grass; every branch and twig is instinct with a delicate joyous movement. To give a time exposure when these conditions prevail is to invite disaster. The result in a print will always be flatness, want of expression, inversion of values; but in a lantern picture, with all the confusion of detail magnified, the chaotic effect will be simply intolerable.

It is, however, on these days—whose sunny serenity is really made up of tense, unremitting movement—that the finest landscape effects are possible, if only the shutter can be used. And here the fast Ilford Films come to our aid. With the Rapid Isochrom, or Monarch, pertectly exposed pictures can be obtained, even when the shutter is worked at its topmost speed; and we can be certain of getting

sharpness of detail just where we choose to focus for it, and a delightful clearness generally throughout the whole picture.

Another advantage of giving an instantaneous exposure to landscapes, when using the fast Ilford Films, is that we can often obtain a perfect sky effect on one and the same plate. On bright windy days, when the face of the sky is for ever changing, and new beauties of cloud form are driving up with every moment, it is always worth while to delay exposure a little in the hope that a natural unity of composition in sky and landscape may be secured. This combination, however, is by no means frequent in nature. Very often it will be found that our view lies in one direction and the ideal cloudscape in the other. As a general rule, therefore, it is better to depend on our stock of cloud negatives to supply deficiencies in this way.

Perhaps in no other branch of photography is the sky problem such a weighty one as in the production of negatives for lantern work. In a print, if the view is otherwise picturesque and interesting, a plain white sky, well trimmed down, is just barely endurable. But a "bald-headed" lantern view is an unmitigated eyesore, not to be excused by any degree of quality in the rest of the subject. Luckily, double printing in a lantern picture is a fairly simple matter, if we depend for our skies on a second lantern plate in lieu of cover glass. The real difficulty lies in the fact that the average stock of cloud negatives is in most cases astonishingly meagre; and very often a beautiful subject is utterly ruined by being joined to a sky incongruous in almost every particular. An excellent plan is to carry, in addition to a half-plate kit such as the one mentioned above, a small pocket camera with horizontal finder, having a fixed focus at infinity, and taking a pack of the 3¼ × 2¼ Monarch Films.

With this, separate sky studies—of the size necessary for contact printing — can be obtained whenever opportunity arises, and a large collection of cloud negatives be gradually brought together at little expense. In cloud photography it is always advisable to carry a small compass, and to note with each exposure not only the time of day, but also the direction in which the camera has been pointed.

TICKNER EDWARDES.

HOW TO COLOUR LANTERN SLIDES.

BY FERDINAND G. KNEER, M.D.

THE instructious upon this topic which are given below are condensed from an interesting article contributed by Dr. Kneer to an American trade monthly, called "Down Town Topics." So far as we know, Elmendorf's aniline dyes are not obtainable in this country, but we have seen some very successful colouring done with the Brun's colours, and there is no reason to suppose that they would not answer in the same way as those which he specifically mentions:

It will be wise for those who know absolutely nothing about colour value, nor possess one spark of artistic taste, to let their lantern slides alone and be satisfied with a good positive without the colour.

I should like to impress the reader that any old aniline dye will not do, for very few of them will be permanent, some only lasting about a week, while Elmendorf's are fairly permanent. I have some lantern slides done with these colours for more than five years, which are still very good. The colours must all be of the same reaction, as acid and basic anilines mixed form a precipitate.

The best brushes will be those made of soft sable; pointed, round, and flat ones will be wanted. The latter for skies and water, or where a large surface requires the same colour. These help also to put colour on more rapidly, which is of great importance, as spotting and difference of density is produced by slow and uneven putting on of the solution. The round brushes are good for tinting trees and less large surfaces, while pointed ones are for more delicate work.

The first thing to do with a slide which we wish to colour is to harden the film. This can be done by treating it with a saturated solution of alum, or solution of formalin. The slide must not be too hard, otherwise the colour will not take well. I should also advise as a start to make slides of objects, such as shells or minerals, as their colours are not complicated, and if the background is made opaque, they stand out beautifully on the screen. I photograph mine against a red plush background, which leaves the negative, except the object, clear glass, and the positive jet black.

One very important thing in landscape work is to see not to get the foliage too green. It is perfectly astonishing to see the paris green effects most people give it—green of every hue. The pale green will be most desirable, and is prepared from a light yellow and blue; the more yellow the lighter it will be, the more blue the darker. Most rocks and paths want just a dash of well-diluted brown over them. This will also do for trunks of trees, etc. Dead grass and fallen leaves should have an ochre tint, made by mixing orange and blue with an addition of vermillion; these latter three colours can be so mixed as to give dozens of different shades, which practice only can indicate.

Now, as to the marine effects. It will not do to pick up the flat brush and run a dab of blue over the water—that will make it look like wash blue. Ocean foam and spray, we must remember, are white; it is only the rest of the water that wants a faint tinting of dark blue.

Skies are a little difficult to do. It would be best for the beginner to give them just a faint blue tint; later he can put a little orange in the horizon, which I do in the following way: I have the blue and orange solutions well diluted and ready, and, after wetting the slide, start the orange at the horizon and the blue at the top of the slide, and gradually work them to meet. It requires some practice to do this nicely, but a little patience and perseverance will make it all right.—*Photography.*

Optical Illusions.

No. IV.

By EDMUND H. WILKIE, *Of the late Royal Polytechnic Institution.*

The most effective illusions have been the result of extremely simple appliances, and those I have previously described will sufficiently illustrate this. Both the "Ghost" and "Metempsychosis" owe their origin to reflection at an angle of forty-five degrees.

This we shall find to be the case with almost all the illusions which can be termed purely and simply optical. It is the "Mystic Angle" to which they all owe their success, and in looking over those effects I hope to treat of presently, I still find the same thing in almost every case. The reason for this is sufficiently obvious, when we consider that the object of an optical illusion is either to lead the beholders to imagine they see something which is really not before them, or to induce them to suppose that they are gazing into an empty space or room, when it contains some object hidden from their sight by illusory means.

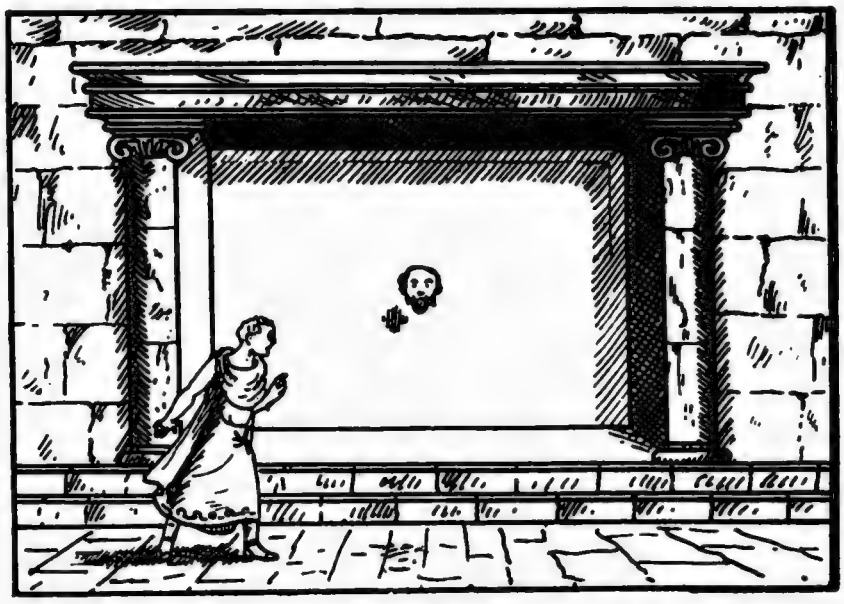


FIG. XII.

A reflector placed at an angle of forty-five degrees answers both of these purposes; in the Ghost illusion the objects were reflected from below, in Metempsychosis from the side, and in "The Modern Delphic Oracle" an object is concealed by reflection from another quarter, which we will not enter into until

after viewing the whole affair from the front of the stage. Here is a little illusion of the simplest character. In the suburbs of Brussels stands a picture gallery known as the Musee Wiertz, containing a collection of pictures painted by one man only. During his life M. Wiertz was very generally considered to be a madman, and when he offered the whole of his paintings to the Belgian Government, on the condition of a suitable building for their reception and exhibition being built, his offer was refused.

At his death it was renewed by his executors, and the authorities this time accepted the terms, and hence the Musee Wiertz.

Besides the pictures are one or two little optical effects, one of which struck the writer as worth remembering.

About five feet above the ground there is an oval hole in a screen, and above this a notice requesting visitors to put their faces into this orifice. On doing so one is surprised and, indeed, for the moment, unpleasantly shocked by observing immediately opposite a very misshapen little hunchback, whose face is that of the spectator himself.

The explanation is very simple. A painting in high relief of the hunchback is placed on the inside of the screen, leaving a hole where the face should be, and the visitor unconsciously finishes the picture by placing his own features in the vacant space, at the same time viewing the whole in a looking glass placed immediately opposite.

One of the principal illusions we have now to deal with was first produced at the old Polytechnic Institution under the title of "The Modern Delphic Oracle," and when all the circumstances, such as allowances for loss of light by reflection, proper angles, and appropriate scenery and accessories have been taken into favourable consideration, the result is very puzzling.

On the rise of the main curtain in the small theatre, the entrance to a Greek building or temple was discovered (Fig. XII.), the principal portion of the scenery being flat, with small entrance porch about twelve feet square in the centre, flanked on either side by columns, and approached by two or three steps. This entrance was closed by a curtain being drawn across; and presently, after a few bars of music, this was drawn aside, and an ancient Athenian nobleman walked down the steps on to the front of the stage, the curtain being drawn across again as he descended.

His appearance betokened advanced age, his garments spoke wealth, and his step was full of dignity.

After burning perfumes in a brazier, he invoked the spirits of deceased celebrities, amongst others, Socrates, when, the curtain rolling back, the head of the sage appeared floating in space in the centre of the small temple. When Socrates had treated the audience to "a taste of his quality," the curtain closed him out, and others appeared in the same place. One entertainment given by the aid of this apparatus was entitled "Shakespeare and his Creations," and consisted in the successive appearances of a number of heads of characters from the great dramatist's works.

After the exhibition of each head, the curtain was drawn across to conceal the change, and finally, the noble Greek made his exit passing through the spot where the heads had appeared, thus showing that no apparatus of any kind existed there. One peculiarity about these heads was their solidity; there was not the slightest doubt about that, and it could be plainly seen that the head cast a shadow on the wall behind.

The mode of working this illusion was very simple, and the sectional view, Fig. XIII., almost explains itself.

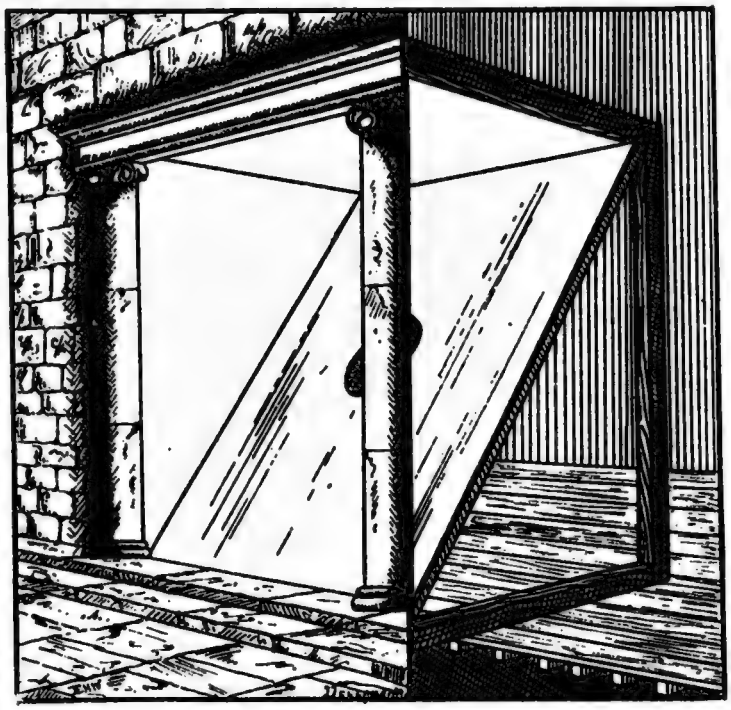


FIG. XIII.

It will be seen that the whole of the necessary apparatus really consists of a large mirror inclining backwards at the top at an angle of 45 degrees to the stage, the bottom edge of the reflector being against the front wall of the chamber. In the centre of the mirror a round piece is cut out just sufficiently large to allow the passage of a human head when made up with wig, beard, and a collar or ruffle of some description round the neck, this latter being for the purpose of completely concealing the edge of the glass.

When the mirror was in position the spectators imagined they were looking into an empty apartment, straight to the back wall, as the mirror reflected the ceiling in that position, and the actor's head, having been previously thrust through the opening in the glass, appeared to be floating in space, as his body was invisible, being hidden by the reflector.

To enable the Greek to walk in and out of the Temple, the mirror was built on runners at the top and bottom and was pulled off the scene, out of the way, while the curtain hid the small apartment from view, and when again withdrawn, the space being clear, the actor could walk through. The shadow of the head was not brought about by any cunning contrivance, but was simply the result of natural laws.

If we throw a diffused light on a mirror at an angle, a patch of light will be reflected at a corresponding angle exactly the same shape as the mirror, and if we spread out our fingers over the glass we shall see a dark mark exactly corresponding to the shape of the hand upon the image of the reflector. Therefore, if we throw a light upon the large mirror used in the illusion, the light will be directly reflected on to the ceiling illuminating the whole of it with the exception of a small round spot in the middle corresponding to the spot in which the piece is cut out in the mirror, for as this portion possesses no reflecting quality no light can be reflected by it.

The ceiling being then reflected to form the back of the Temple the small spot of darkness appears in the centre just behind the head, and produces a natural effect sufficient to throw the most expert illusionist off the scent.

One of the subjects illustrated by this form of apparatus was known as "The Cherubs floating in the Air" and represented five cherubs grouped according to the celebrated picture by Sir Joshua Reynolds, the little heads and wings apparently floating in space. Unlike most optical illusions, all these effects were produced on a brilliantly illuminated stage, and I think I may safely assert were extremely popular.

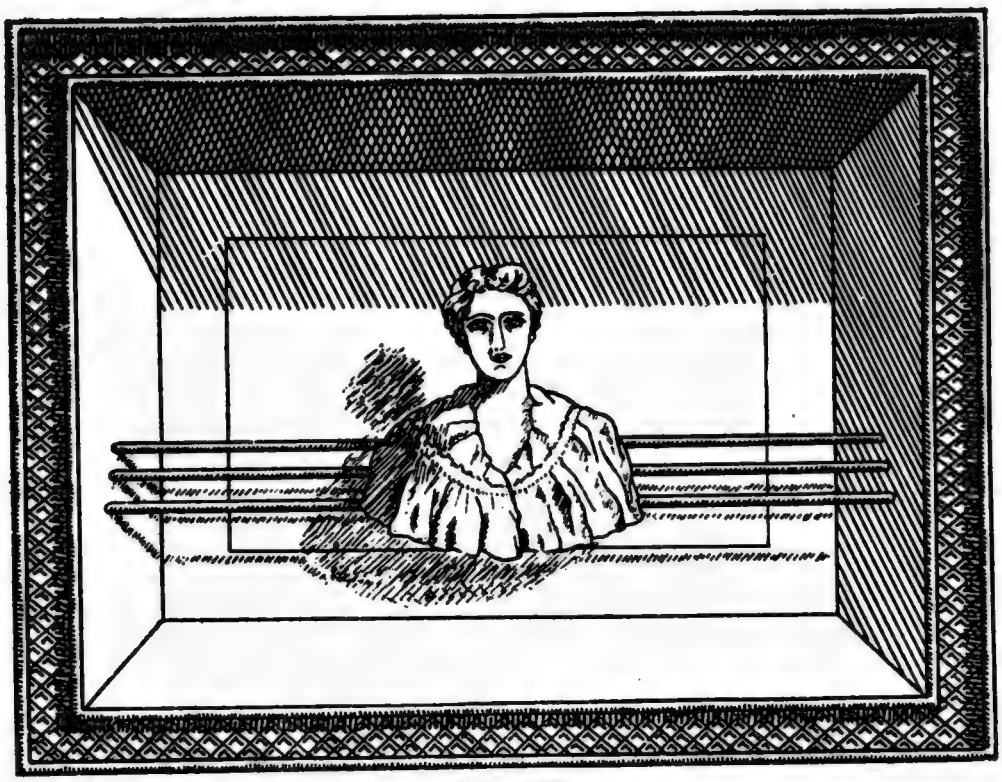


FIG. XIV.

At various times we have seen at shows and various places of public entertainment an adaption of this principle, which, although in the main is a copy of our last illusion, goes yet still further and possesses an important improvement, which renders it very puzzling when first viewed.

In the room of exhibition a barrier is placed about eight or nine feet in advance of a handsome gilt picture frame, which apparently hangs upon the wall, but which instead of containing a picture is closed in by a curtain. After an introductory discourse by the exhibitor explaining illusions generally, which is carefully worded to distract the attention of visitors and confuse their ideas generally, the curtain is drawn aside and the interior of the frame appears as in Fig. XIV.

It contained a small oblong square chamber across which from side to side extended three brass rods, the centre one being quite in the middle of the wall, the top one a little higher up and slightly in the rear, and the bottom one a little below and in advance ot the middle rod. Thus the three rods formed a shelf sloping downwards towards the front, and upon this arrangement rested the head or rather the bust of a young lady, beautiful flaxen wig, rouge, blanc de perle, false teeth, skin tightener, etc., could make her, from which you will gather that she presented a very charming appearance indeed, and had in all seriousness done her very best to render herself as illusory as possible; and now, my present space being exhausted, I leave you, dear sir, and respected madame in the company of this lady until our next.

(*To be continued*).

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Queries.

21 **Beads.**—Can you tell me where to get beads large enough to go on the flexible wire of my arc lamp?—V. A.

22 **Shock from Arc Lamp.**—Could you tell me what to do with a Hepworth Arc Lamp? The lamp is the same as a bare wire in contact, but it burns splendidly. If you touch any part you get shocked.—S. A.

Answers to Queries.

19 **Exhibiting.**—If "Cabinet" wishes to save himself much disappointment through failure, he will reconsider his decision very carefully, and not venture on the new occupation without first acquiring a thorough theoretical knowledge of the business. My experience in this line has been very trying, though somewhat exciting. It is impossible to foretell whether a show is going to pay in a certain town or not. It is necessary to book halls many months beforehand; and any number of meetings might be held just the week you happen to be in town, which have contra-attractions to spoil the size of your audiences. Hopwood's *Living Pictures* would be helpful to "Cabinet"; it costs 2/6. Gutenberg Press, Ltd., 125, Fleet Street, London.—E. S. R.

20 **Torn Films.**—Your films are either incorrectly perforated, or your sprocket wheels have teeth too small or of a wrong pitch to suit the gauge of the perforations. If the teeth of your sprocket wheels are so small as to only partly fill up the perforations, the film will slip every time it is pulled one picture space forward; and this is the cause of the breakage. See that your perforations match with the pitch of the standard Edison gauge, and, if you find this is so, next examine sprocket wheels for the defect already mentioned. If they are faulty in this respect you must send machine to makers to have new sprocket wheels fitted. This is expense and trouble, but will pay better than constantly injuring your films.—CINEFILMER.

Catalogues and Books Received.

A Useful Letter Copying Book for Lanternists.—The Pencarbon Company, Ltd., of 134, London Road, Leicester, has sent us one of their Pencarbon Copy Books, which we find exceedingly useful and handy to use. Letter paper is inserted under the patent holder which is supplied with every book, and is ready for use. The letter to be copied is written in the ordinary way with pen and ink. After writing and removing the paper a perfect copy is found. Unlike ordinary carbon copying books, there is nothing on the back of the original to show that the letter has been copied, and the original letter is sent, the carbon copy being retained for reference. We can heartily recommend lanternists to use this system, which we much prefer to using a press and book with leaves that have to be damped. It is cleaner, handier, and very much less expensive.

The Altrincham Rubber Company, Mossburn Buildings, Altrincham, sends us a copy of their catalogue, in which we note especially opaque lantern screens. These are prepared with pure white, flexible, opaque surfaces, mounted on roller, with batten, cord, and pulleys. Their rubber cloth developing aprons, sleeves, and dishes should also be noted by lanternists.

Burroughs, Wellcome & Co.'s "Tabloid" Preparations.—A booklet comes to hand containing particulars of these portable products. There is a special preparation for rendering lantern slides with a warm tone. We understand the booklet will be sent free on application to the firm at London, or particulars may be obtained at most photographic chemists and dealers.

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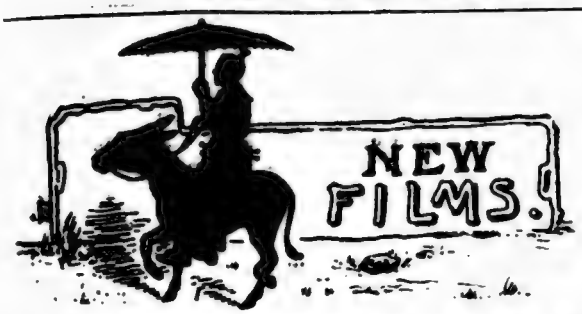


At last the time has arrived when one is able to walk about the country without an overcoat and bask in the rays of the sun. During the month cinematograph operators have had the luxury of brilliant sunshine and have been able to close down the diaphragm of their lenses with a feeling of perfect security. Everyone welcomes the advent of Spring, but no-one is more pleased to see the return of the bright days than the man who turns the handle of the camera. There can be no doubt that this is the general consensus of opinion, and we have met several well-known operators of the cinematograph who told us that they have been making the most of their opportunity during the last few days.

The public demand for films continues to be in the direction of good high class comic subjects and our readers will gather from our review, noted below, that this demand is being adequately met by the manufacturers.

Messrs. Hepworth & Co. have secured two very good comics, one is entitled "Poison or Whisky? or the Lover's Ruse," and shows a man who, being unsuccessful in his love affairs, one day meets the object of his love and, being again refused, takes from his pocket a dark blue bottle and drinks the contents. He then rolls on the ground in apparent agony, and the lady, believing it is too late, tells him that she loves him. Her suspicions are, however, aroused, and taking up the bottle, she smells it, and smilingly finishes the contents. The picture ends happily with the loving couple walking off arm in arm. Messrs. Hepworth's other subject is entitled "The Amateur Architect," and shows the misfortunes of a surveyor who, accompanied by his wife, ascends an unfinished building to inspect the progress of the work.

The Sheffield Photo Co. are to be congratulated on the latest film which they have just put on the market, and which we place in the front rank of films of this character. It is entitled "An Eccentric Burglary" and the way in which these gentlemen have introduced the old trick of reversing is novel and amusing. We can understand any audience witnessing this film wanting to come again the next night to have another view of it.

Messrs. Gaumont & Co. shew no sign of their source for comic films drying up, for they appear able to go on for ever turning out good subjects. "Blind Man's Buff" is a good film shewing the mischievous pranks of a couple of boys on an old blind beggar, who, becoming exasperated, endeavours to thrash the youngsters with a log of wood, but the punishment falls instead on to an old gentleman, who is somewhat surprised at that way of expressing gratitude for a coin he had placed in the blind beggar's hat. "The Dangerous Golfers" is very funny and we should say that this comic film dealing with this fashionable game will appeal to a large and influential class of people. The film shews two enthusiastic golfers, who, so absorbed in the game, are regardless of the wounds and damage they inflict on other people and continue to play until everyone who comes on the links is incapacitated, and finally a nurse, who is attending to the wounded, turns on the two enthusiasts and "goes" for them.

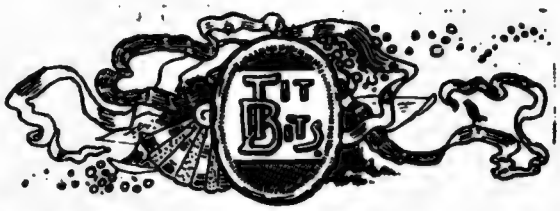
"Above and Below Stairs" is very funny, and the contrast between the occupants of the drawing room and the people in the kitchen is most admirably done. Perhaps the best film that Gaumont's have turned out is "The Birthday Umbrella or An Unlucky Day" and the way this film is received at the Palace Theatre night after night is a sufficient recommendation as to its quality and humour. The scene shows a stockbroker and his wife at breakfast, the occasion being the birthday of the lady, and to celebrate the event the husband makes up his mind that whatever happens he will not get out of temper during the day. One present has reached his wife, an umbrella, which the gentleman opens in the room to inspect. The series of misfortunes which dog the steps of the lady and gentleman all day (the latter having committed such an unlucky action as to open an umbrella inside a house) are most ludicrous.

The Warwick Trading Co., Ltd., are putting out a comic entitled "The Jail-bird; or the Bishop and the Convict." When seeing this film we rather fancied we could tell where the operator got his ideas, for it seemed to us to be founded upon a tale in one of the well-known magazines last month. The film is laid at a seaside resort where a bishop and his daughter are staying. The bishop goes for a morning dip and while in the water, his clothes are stolen by an escaped convict, who changes his own tell-tale clothes for those of the ecclesiastic. The bishop, discovering his loss, borrows some sailors' garments from the coastguard and gives chase, assisted by four or five coastguardsmen. The convict, after murdering a girl on the cliffs for the sake of

her money and valuables, is run to earth in a public house, from which, however, he escapes and endeavours to get away by boat. The sea washes the boat back to the beach, and, after a severe struggle, the convict, arrayed in bishop's clothes, is walked off to prison. The story closes with the bishop—in seaman's clothes—returning to the hotel, where he is warned off the premises by a porter who does not recognise the bishop as the dishevelled sailor. But for the fact that the bishop's daughter hears his voice and recognises him, he would come off badly. The humour with which the film is simply bubbling over arises from two causes, one that although the bishop is clad in sailors' costume, he still behaves like a bishop; and secondly, that although the convict is arrayed in the clothes of the bishop, he still behaves like the scoundrel he is. As these two parts were played by artistes of the highest professional talent, these traits are most clearly brought out in the film and will cause any audience viewing the subject to be in roars of laughter from start to finish.

MR. PAUL, of Holborn, has a strong seller this month, for which there should be great demand. Herr Unthan, "the Armless Wonder," is seen upon the stage prior to the start for his sensational drive through London. He is having a game at nap with a friend. Equally as well as you or I could do it with our hands, he is seen to shuffle the cards, cut for deal, deal out the cards, play, pick up his winning tricks, etc. After winning, he invites his friend to join him in a drink. He proceeds to uncork a bottle of wine with his feet, finally pouring out two glasses. Compliments are passed, and then holding the glass between his first and second toes, he lifts it to his mouth and drinks, afterwards taking a handkerchief from his pocket to wipe his mouth. We next see him on the driver's seat of a phæton, to which two fiery American mustangs are harnessed. After making himself comfortable, he gathers up the reins and whip and drives off with the horses under perfect control amid loud cheerings. We finally see him driving towards the camera, and, to prove his marvellous power, he pulls the horses up to a standstill right in front of the machine. A truly marvellous exhibition.

IN the course of our wanderings amongst the different firms, we met one gentleman who is going away for some considerable time on a subject which we only hope he may be fortunate enough to secure, as we feel that, although the British public are glad to see amusing and comical subjects, they are also only too pleased to have some important industry placed in front of their eyes. We feel confident now that the days are lengthening, the light improving, and more dependence can be placed upon the weather, that the different firms engaged in the business will find more scope for their enterprise, and the character of the films we have to review month by month will be most instructive as well as amusing.



Mr. F. Martin Duncan, well known to the cinematograph trade for his renowned microscopic subjects, has accepted the editorial chair of the *Camera Club Journal.*

Lantern Illustrated Songs are gaining in popularity. Reports reach us from quite a number of the provincial halls which are following the example of the London Coliseum, and making this turn an important feature of their entertainments.

Removal.—Messrs. Harrington & Co., publishers of the *Australian Photographic Journal* and dealers in photographic apparatus, are opening new and more extensive premises at 386, George Street, Sydney, where all communications should be addressed.

Mr. A. J. West, with "Our Navy and Army," has been having a successful time in our Eastern counties. This entertainment, with its appropriate orchestral music and songs, is still gaining in popularity, and should prove an excellent recruiting medium for our two forces.

Highly Technical but Interesting.—At a meeting of the Royal Microscopical Society, at their rooms in Hanover Square, a lecture was recently given by Mr. J. E. Stead, F.R.S., in which he reviewed the work carried on by metallographers in recent years, and showed a large number of lantern slides.

"Prehistoric Peeps."—Mr. E. T. Reed, the famous contributor to *Punch*, after much study of specimens of extinct animal life, produced his celebrated series of humorous drawings, entitled "Prehistoric Peeps." It is said that these drawings are so accurate and true to nature that lantern slides have been prepared from them for use in schools during the natural history lessons.

Cinematographic Eyes.—Morot, the celebrated painter, has demonstrated wonderful skill in painting cavalry. The secret of his great success in this line lies somewhat in the method in use in observing horses in motion. As a horse galloped by he would tightly close his eyes, then suddenly open them and take an instantaneous look, repeating the process several times until the figure of the animal became indistinct. In this way he obtained an impression of rapid action, which was retained on the eye for several seconds whilst he sketched it in his note book.

Adventures in Cloudland.—The Committee of the Bromley Camera Club are to be congratulated upon the success of the lecture delivered under their management by Miss Bacon, the daughter of the late Rev. J. M. Bacon, the well-known scientist. It was illustrated with lantern views from photographs taken by the lecturer during her own voyage in cloudland.

Another Lady Lecturer.—Miss Jessie Noble gave a lecture, illustrated with lantern slides, recently at the Liverpool Teachers' Guild, on "South African Experiences of Educational Operations." Miss Noble described the happy lives of the teachers in the camps, and the kindness and courtesy shown to them by both the Boer parents and children.

Natural History Society, Northampton.—The Annual Meeting of the Northamptonshire Natural History Society was held at the Masonic Hall on Monday, March 6th. After the business of the meeting, Mr. G. C Druce, F.L.S., of Oxford, gave an extremely informative lecture on "A Visit to Greece and Turkey," which was illustrated by some splendid photographs.

Lecture on the Sun.—Under the auspices of the Leytonstone Literary and Debating Society a very interesting lecture was given on "The Sun" by Dr. J. D. McClure, M.A., F.R.A.S. When some slides of sun-spots were shown the lecturer astonished the audience by stating that the diameter of the greatest sun spot had been calculated at 143,000 miles, and that one was seen about a fortnight ago which was nearly as large, being visible to the naked eye. A series of slides was shown illustrating the rapidity with which the sun spots change their formation. No spots are seen near the poles of the sun, but a satisfactory conclusion has never been arrived at as to the reason. The lecturer concluded with an excellent display of photographs of eclipses, some of them having been taken as long ago as 1871.

Nature's Microscopic Marvels.—On Monday, March 6th, Mr. Sydney Price, of Wellington, gave a lecture at Taunton on this subject. Nature study, he said, was rather a pedagogical point of view than a subject, a rational and natural point of view, which called for personal enthusiasm on the part of the teacher, and introduced spontaneity into his teaching. If they could get teachers imbued with the spirit that influenced field naturalists, then the Nature study movement would receive a healthy stimulus. Mr. Price then proceeded with his lecture, which was illustrated by an excellent series of lantern slides and cinematographic pictures, the lantern being ably manipulated by his son, Mr. Reginald Price.

Photographic Lantern Slides in Natural Colours.—The members and friends of the Salisbury Camera Club had a great treat on Tuesday, March 14th, when Mr. E. D. Doncaster lectured on "Photography in Colours." The Sanger Shepherd system was the one particularly dealt with, and Mr. Doncaster, in a very lucid manner, explained the whole system from the taking of the triple negatives through the three-colour screens to the finished combination in the form of a lantern slide. About a hundred specimens were projected, the lantern being manipulated by Mr. Frank Watson. A large range of subjects was displayed, including microscopical specimens, landscapes, genera, and reproductions of oil paintings by great masters. In view of the comparative simplicity of the process, it is suprising that more lanternists do not devote themselves to this fascinating work But we predict a great future for the art.

Dr. Seaton's Animated Photograph and Concert Company visited Salisbury for one week, March 13-18. The selection of film pictures included "Life in Canada," Japanese and Russian Scenes pertaining to the War, and "Wonders of the Deep." The musical programme included songs by Miss Marie Clifford and Miss Marion Williams. Handbell solos by Mr. William Kingsley were much appreciated. Dr. Seaton, who is an illusionist, did the hand cuff trick, and exhibited marvellous skill in his manipulation of Japanese plates, dishes, and a large pan. He also gave a demonstration entitled "The Mystic Kettle," being experiments with liquid air. Professor Carson's ventriloquistic powers are also worthy of note, as he apparently invested his dummy Ally Sloper with life and the powers of speech.

The Growth of Plants Cinematographed.—Mrs. Dukinfield H. Scott recently lectured at the Athenæum, Kingston-on-Thames, on "The Movements of Plants." Mrs. Scott spoke of the many fascinating subjects in the plant world possible to the cinematograph. If photographs of a germinating seed were taken by the cinematograph at regular intervals during many days until the seed had germinated and sent up its seed leaves, the photographs could be thrown on the screen, and spectators could see the earth raised up by the swelling seed, the seed-coat thrown off, the seed leaves emerge, straighten themselves out, and then the first leaves burst forth. The lecturer's first experiments were made with a film cinematograph, but there were defects, as the celluloid film would not stand the damp of the greenhouse. More successful were her experiments with the kammatograph, in which the photographs are taken on a glass disc. The disc, twelve inches in diameter, was suspended in a metal ring; it was coated with a sensitive emulsion, just like any ordinary photographic plate, from which it only differs in size, and was capable of taking 350 photographs. When ready for use, the disc was put into the machine, which was light proof, and by means of a handle at the side could be rotated, so that every part of the plate was exposed before the small oblong opening in front of the lens, and the photographs appeared in a spiral on the disc. For many parts of the day a photograph taken once every quarter of an hour was found sufficient. The practical difficulties in this kind of photography were explained by the lecturer, who showed on the screen some very beautiful examples of her work with the sparmannia africana, the weather plant, and the sensitive plant (mimosa sensitiva). Mrs. Scott apologised for some imperfections in the photographs, but after three years' work she had only eight successful plates. Her hope was that in course of time the machine might be made automatic, so that the photographs could be taken at night as well as by day.

Literary Contributions and Notices from Secretaries are invited; and should be addressed to the Editor, 34a, Castle Street, Salisbury.

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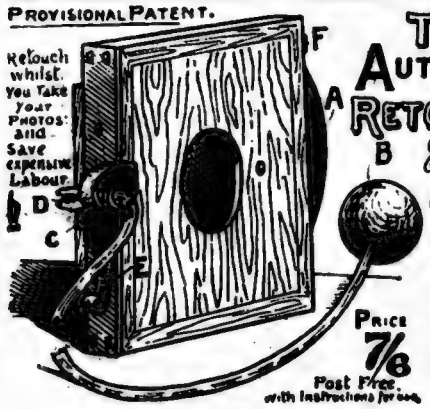

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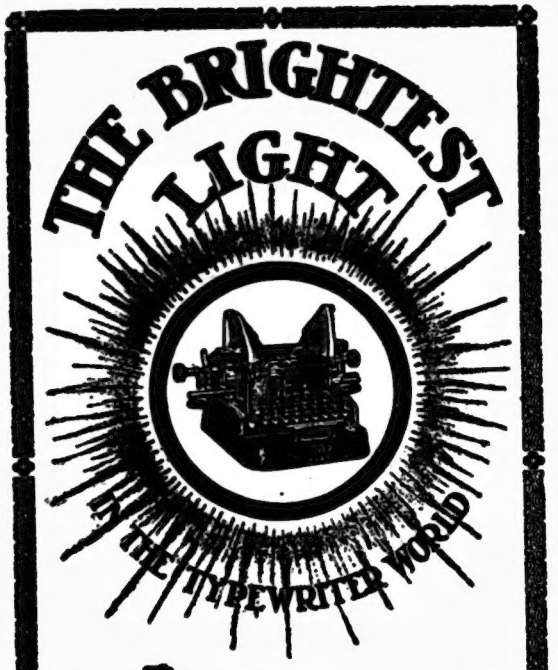

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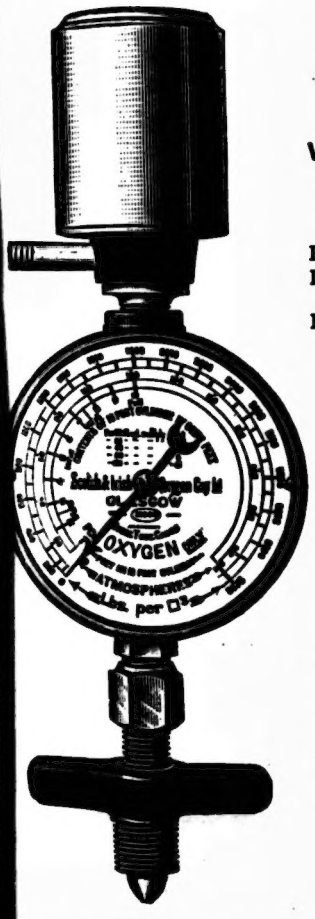
Trade Announcements.

WANTED. Three Arc Lamps, suitable for triple lantern or cinematograph, also 220 volts Resistance Frames, and good Dissolving Effect Slides.—APPARATUS, c/o Optical Lantern Journal Office.

WANTED. Secondhand Sets of Lantern Slides in sets (life model stories, travels, etc.), with readings.—Prices and particulars to Box 40, Optical Lantern Journal Office.

WANTED. Secondhand Cinematograph Films, "Trip to Moon," "Off for Holidays," etc., must be in good condition.—Particulars to Box 41, Optical Lantern Journal Office.

J. BONNEVILLE (late of 208, St. John Street, Clerkenwell), maker of limelight and acetylene jets Cinematographs made and repaired. Parts supplied. Wheels cut.—Fairview, Battle, Sussex.



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With or Without PRESSURE GAUGE

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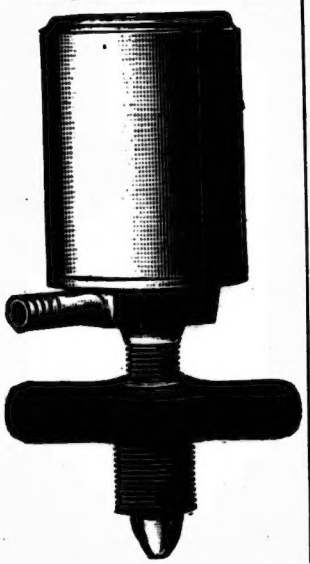

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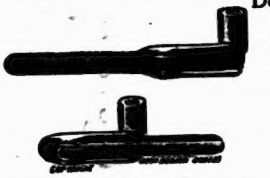
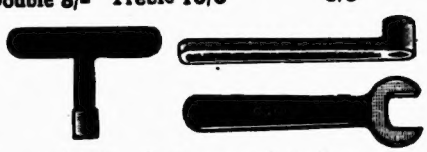
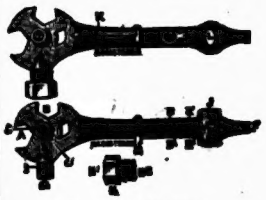
Tee Connection for Gauge & Regulator, 6/6



Folding (Murray's Patent), Blacked 1/9 Plated 2/-



KEYS (all of stamped steel)— Tee, Blacked 1/6 Plated 1/9 Lever 1/9 Gland 1/6



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Through-Passage Gauge, fitted with loose spring back and safety check 4 in. 37/6 2½ in 26/- Regulator 20/- ex

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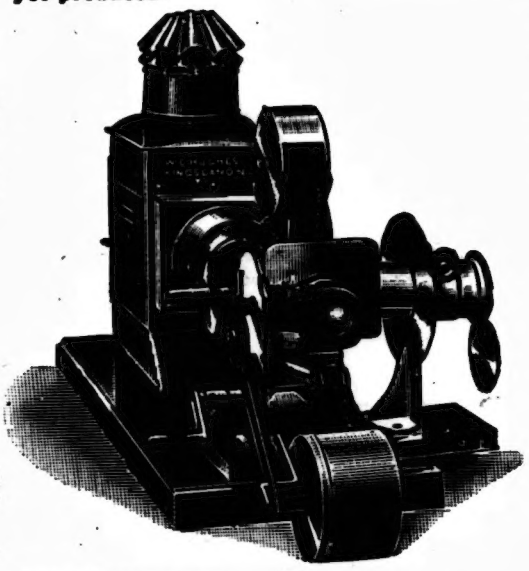

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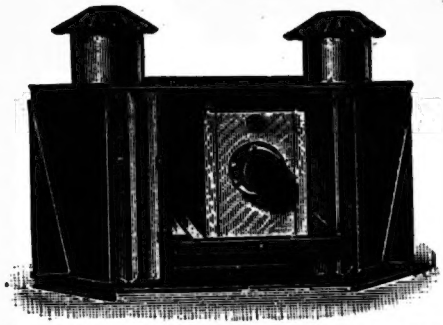

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Printed and Published for the Proprietors, by E. T. Heron & Co., 9 & 11, Tottenham Street, Tottenham Court Road London, W. April, 1905.